



P-DUKE POWER

UFED20W Series

Chassis-Mount DC-DC Converter
Up to 20 Watts

3
YEARS
WARRANTY

ROHS
COMPLIANT

REACH
COMPLIANT



Automation



Datacom



IPC



Industry



Measurement



Telecom



Automobile



Boat



Charger



Medical



PV



Railway

CB CE

1600
VDC
Isolation
Voltage

4 : 1
Wide
Input
Range

FUSE
Installed

INRUSH
CURRENT
LIMIT

Internal
EN55032
Class **B**
Filter

NO
Min. Load
Required

REMOTE
ON
OFF

REVERSE
POLARITY
PROTECTION

OCP

OVP

SCP

UVP

PART NUMBER STRUCTURE

UFED20 -	48	S	05	W -	N	R	EC
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Input Range	Remote Control Option	Conformal Coating Option	Assembly Option
	24:9.5~36 48:18~75	S:Single D:Dual	3P3:3.3 05:5 12:12 15:15 05:±5 12:±12 15:±15	4:1	□:Positive logic N:Negative logic	□: None R: Conformal Coating	□: None EC: Enclosed Mounting Type DR: Din Rail Mounting Type ED: Enclosed & Din Rail Mounting Type

TECHNICAL SPECIFICATION All specifications are typical at nominal input, full load and 25°C unless otherwise noted

Model Number	Input Range	Output Voltage	Output Current @Full Load	Input Current @ No Load	Efficiency	Maximum Capacitor Load
	VDC	VDC	mA	mA	%	μF
UFED20-24S3P3W	9.5 ~ 36	3.3	5500	51	84	18000
UFED20-24S05W	9.5 ~ 36	5	4000	66	87	9600
UFED20-24S12W	9.5 ~ 36	12	1670	25	85	1650
UFED20-24S15W	9.5 ~ 36	15	1330	26	85	1050
UFED20-24D05W	9.5 ~ 36	±5	±2000	58	87	±4800
UFED20-24D12W	9.5 ~ 36	±12	±833	33	86	±825
UFED20-24D15W	9.5 ~ 36	±15	±667	34	86	±525
UFED20-48S3P3W	18 ~ 75	3.3	5500	36	84	18000
UFED20-48S05W	18 ~ 75	5	4000	36	87	9600
UFED20-48S12W	18 ~ 75	12	1670	17	86	1650
UFED20-48S15W	18 ~ 75	15	1330	17	86	1050
UFED20-48D05W	18 ~ 75	±5	±2000	36	88	±4800
UFED20-48D12W	18 ~ 75	±12	±833	19	87	±825
UFED20-48D15W	18 ~ 75	±15	±667	19	87	±525

INPUT SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating input voltage range	24Vin(nom) 48Vin(nom)		9.5 18	24 48	36 75	VDC
Input fuse	slow blow	24Vin(nom) 48Vin(nom)		6 4		A
In-rush current				15		A
Start up voltage		24Vin(nom) 48Vin(nom)			9.5 18	VDC
Shutdown voltage		24Vin(nom) 48Vin(nom)	7 14.5	7.5 15	9 17.5	VDC
Start up time	Constant resistive load	Power up Remote ON/OFF		100 20		ms
Input surge voltage	100ms, max.	24Vin(nom) 48Vin(nom)			50 100	VDC
Remote ON/OFF	Referred to –Vin pin	Positive logic DC-DC ON (Standard) DC-DC OFF Negative logic DC-DC ON (Option) DC-DC OFF Input current of Ctrl pin Remote off input current	-0.5	Open or 3 ~ 12VDC Short or 0 ~ 1.2VDC Short or 0 ~ 1.2VDC Open or 3 ~ 12VDC 2.5	0.5	mA mA

OUTPUT SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Voltage accuracy		3.3Vout Others	-1.5 -1.0		+1.5 +1.0	%
Line regulation	Low Line to High Line at Full Load	Single Dual	-0.2 -0.5		+0.2 +0.5	%
Load regulation	No Load to Full Load	3.3Vout Others	-1.5 -1.0		+1.5 +1.0	%
Cross regulation	Asymmetrical load 25%/100% FL	Dual	-5.0		+5.0	%
Voltage adjustability	Single output		-10		+10	%
Ripple and noise	Measured by 20MHz bandwidth	Single 3.3Vout Others Dual All		60 75 100		mVp-p
Temperature coefficient			-0.02		+0.02	%/°C
Transient response recovery time	25% load step change			250		μs
Over voltage protection	Zener diode clamp	3.3Vout 5Vout 12Vout 15Vout		3.9 6.2 15 18		VDC
Output indicator				Green LED		
Over load protection	% of Iout rated			150		%
Short circuit protection						Continuous, automatic recovery

GENERAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output Input (Output) to Chassis	1600 1600			VDC
Isolation resistance	500VDC		1			GΩ
Isolation capacitance					4000	pF
Switching frequency			360	400	440	kHz
Safety approvals	IEC/ UL/ EN60950-1				UL:E193009 CB:UL(Demko)	
Chassis material					Aluminum	
Conformal coating					Impregnating varnish	
Weight					89g (3.13oz)	
MTBF	MIL-HDBK-217F, Full load				1.966 x 10 ⁶ hrs	

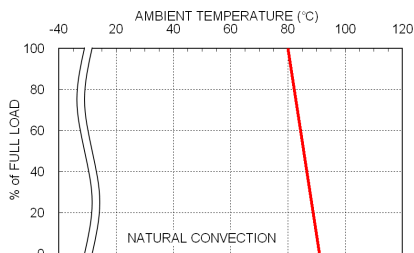
ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating ambient temperature		Without derating With derating	-40 +75		+75 +100	°C
Storage temperature range			-40		+105	°C
Thermal shock					MIL-STD-810F	
Vibration		□□S□□W -□□ □□S□□W -□□IEC □□S□□W -□□DR □□S□□W -□□IED			MIL-STD-810F MIL-STD-810F IEC60068-2-6 IEC60068-2-6	
Relative humidity					5% to 95% RH	

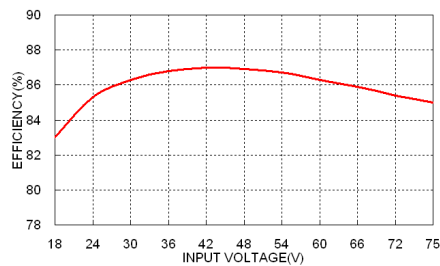
EMC SPECIFICATIONS

Parameter	Conditions		Level
EMI	EN55032		Class B
ESD	EN61000-4-2	Air $\pm 8\text{kV}$ and Contact $\pm 6\text{kV}$	Perf. Criteria A
Radiated immunity	EN61000-4-3	10V/m	Perf. Criteria A
Fast transient	EN61000-4-4	$\pm 2\text{kV}$	Perf. Criteria A
Surge	EN61000-4-5	$\pm 0.5\text{kV}$	Perf. Criteria A
Conducted immunity	EN61000-4-6	10Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8	100A/m continuous; 1000A/m 1 second	Perf. Criteria A

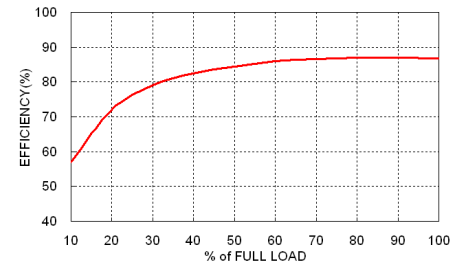
CHARACTERISTIC CURVE



UFED20-48S05W Derating Curve



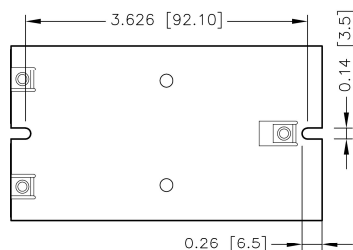
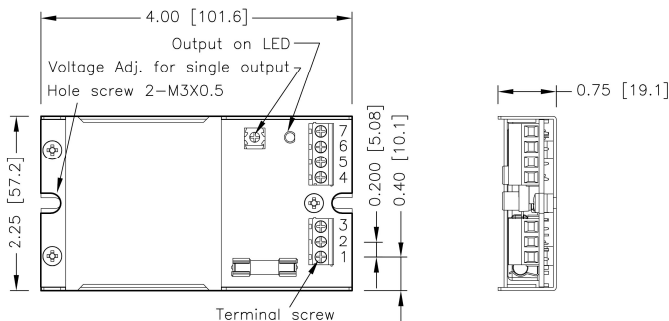
UFED20-48S05W Efficiency vs. Input Voltage



UFED20-48S05W Efficiency vs. Output Load

MECHANICAL DRAWING

CHASSIS MOUNTING TYPE



BOTTOM VIEW

TERMINAL CONNECTION

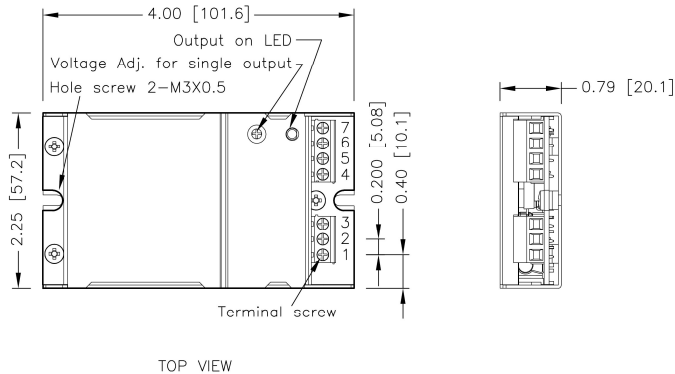
NO.	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
3	Ctrl	Ctrl
4	NC	NC
5	-Vout	-Vout
6	+Vout	Common
7	NC	+Vout

※ NC : No Connection

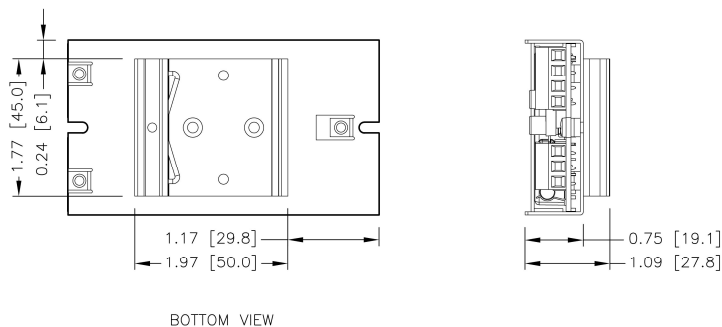
※ Screw terminals – wire range from 14 to 18 AWG

MECHANICAL DRAWING(CONTINUED)

ENCLOSED MOUNTING TYPE



DIN RAIL MOUNTING TYPE



1. All dimensions in Inch [mm]
2. Tolerance : X.XX±0.02 [X.X±0.5]
X.XXX±0.01 [X.XX±0.25]
3. Hole screw locked torque :
MAX 5.0kgf-cm/0.49N-m
4. Terminal screw locked torque :
MAX 2.5kgf-cm/0.25N-m